The characteristics of a Knowledge Exchange and Enterprise Network (KEEN) project

A report on the profiles of the knowledge exchange projects in the KEEN programme funded by the European Regional Development Fund and managed by the University of Wolverhampton

Research undertaken by Dr D Boucher, Dr A Jones, Dr G Lyons, K Royle, S Saleem, P Simeon and Dr M Stokes

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KEEN Knowledge Exchange & Enterprise Network

Acknowledgements

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1.1 INTRODUCTION

This report was prepared during the early part of the research in December 2014 and it investigates the character of projects within a university/business collaboration programme sponsored by the European Regional Development Fund (ERDF). The Business Solutions office of the University of Wolverhampton has co-ordinated and managed knowledge transfer projects on behalf of the university for many years. In recent times, the team has been responsible for concurrently organising and administering a large portfolio of these projects within a programme entitled the Knowledge Exchange Enterprise Network (KEEN).

KEEN projects were begun in 2012 as a result of an initiative led by the University of Wolverhampton, originally in conjunction with twelve other university partners within the West Midlands region. KEEN was setup as a response to the fact that smaller businesses found themselves unable to participate in collaborations, especially in disciplines such as marketing. The KEEN programme has been focussed on projects which work on the strategic growth of local businesses within the small and medium enterprise (SME) community in the West Midlands Region, by the provision of support from experienced university academic staff and an affiliate (a recent graduate with appropriate specific skills) to provide the collaborative intervention link. The projects were part-funded (up to 50%) by the ERDF.

2.1 The KEEN Programme Dataset

The analysis contained in this report sets out to determine the characteristics and dimensions of the university/business collaborations within the ERDF funded KEEN programme. Six of the members of the original consortium have actively participated in running KEEN projects.

2.2 Overall Dimension of the Research

The group of universities involved in the KEEN projects which have received support from the ERDF consists of Aston University, Birmingham City University, Coventry University, Staffordshire University, the University of Wolverhampton, and the University of Worcester. The distribution of KEEN projects by their university partner is described in Figure 1 below.

Pie Chart of KEEN Projects Analysed by University Partner

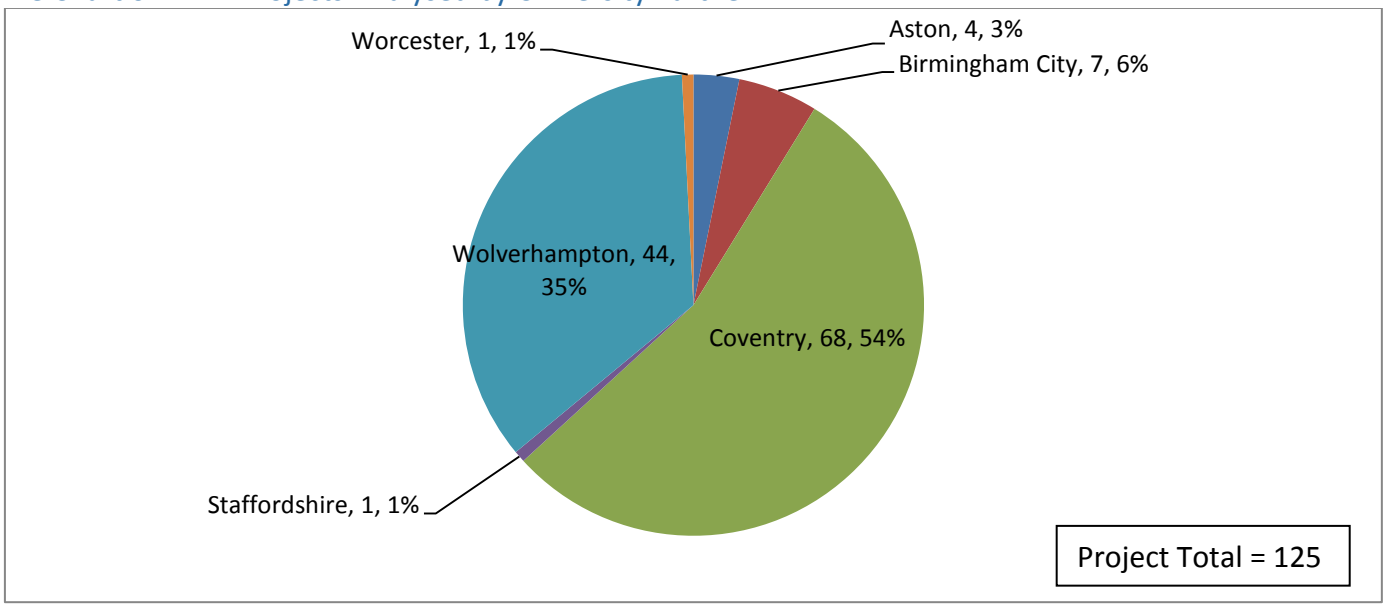

Figure 1. Distribution of KEEN Projects between the Participating Universities

A total of 125 projects[1] were started in the programme as at 08/12/14. The largest university participation was from Coventry University with 68 projects (54%), followed by the University of Wolverhampton with 44, a 35% share. The remaining members of the group made up the 11% balance and each partner had between one and seven projects (a 1-6% share).

3.1 Analysis of the Character Profile of the KEEN Projects

Collection of the profile data on the projects started with the University of Wolverhampton portfolio. The initial source of the profile information for the KEEN projects was an examination of the document box

[1An extra Birmingham City project was notified in January, 2015, too late to be included here, making the final total: 126 projects.]

in the Business Solutions Office at the Wolverhampton Science Park. A KEEN box file typically contained the Contact Sheet, the Application Form, the project budget plan, and the minutes of the periodic project management meetings. The same documentation was maintained by the other university partners and was collected by them for their projects. These were, typically, the electronic format equivalents, stored for reference on the Wolverhampton Business Solutions network storage area for KEEN.

3.2 Distribution of the KEEN Projects by Location (County)

An analysis was carried out on the KEEN dataset to identify the location of the partner company using their trading address, as recorded on the application form. Over half of the projects were located within the West Midlands metropolitan region, with 69 (55%) of the projects falling into this category, as shown in Figure 2. Three of the remaining counties had similar popularity: Warwickshire was second with 19 (15%) projects; Worcestershire was third with 16 (13%); and Shropshire was the final member of the group with 14 projects (11%), indicating that manufacturing industries based around Telford have boosted what is otherwise a relatively rural region. The two remaining regions had small shares of less than 10%. Herefordshire may have suffered from the absence of any university in close proximity to the county, while the lack of projects from Staffordshire University may have in part accounted for the low take up in that county.

Pie Chart of KEEN Projects Analysed by Location (County Region)

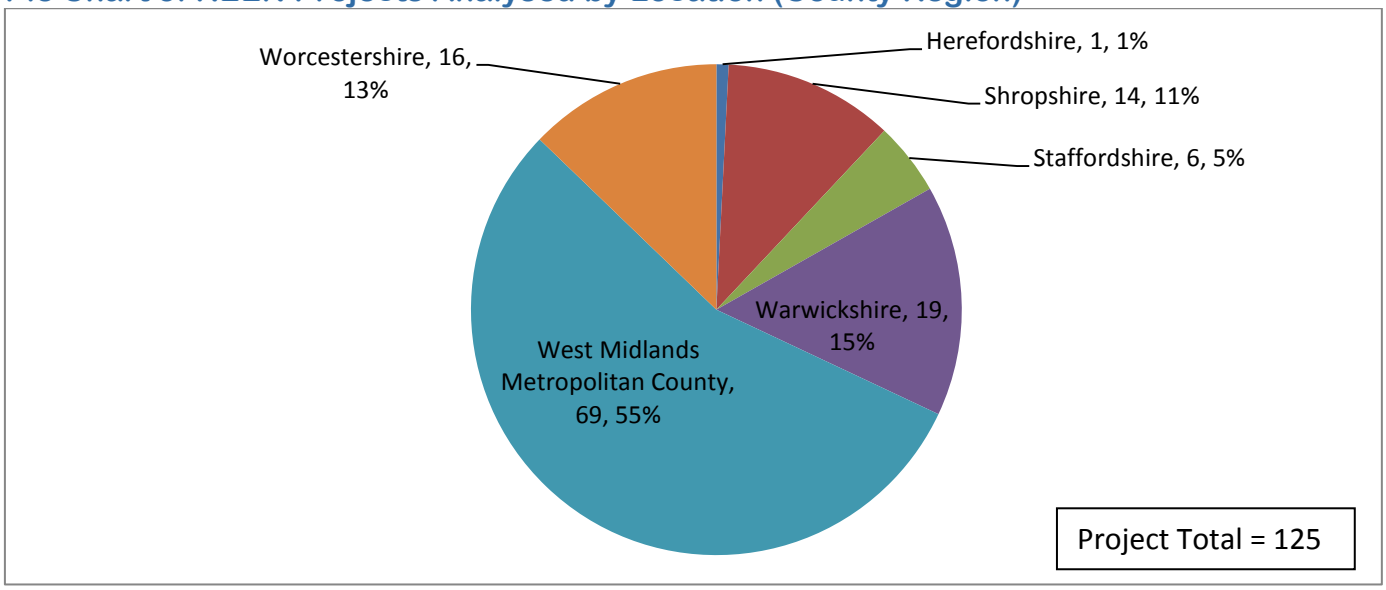

Figure 2. Distribution of KEEN Projects by Location (County Region)

The geographic location of the partner companies and Universities participating in the KEEN programme is depicted in Figure 3. The brown lines on the map show the outlines for the local government county boundaries. The location for the company is marked by the push pins using the following key. The location of each University partner is also marked by a pin:
Aston University, blue (4 companies)
Birmingham City University, dark green (5 companies)
Coventry University, yellow (49 companies)
Staffordshire University, light green (1 company)
University of Wolverhampton, red (39 companies)
University of Worcester, purple (1 company)

(Notes: There is only one pin per company even when there is more than one project at a company. In the more densely populated areas, pins may be obscured by neighbouring ones especially from the more prolific Universities.)

Geographic Map of Company Location Showing County Regions

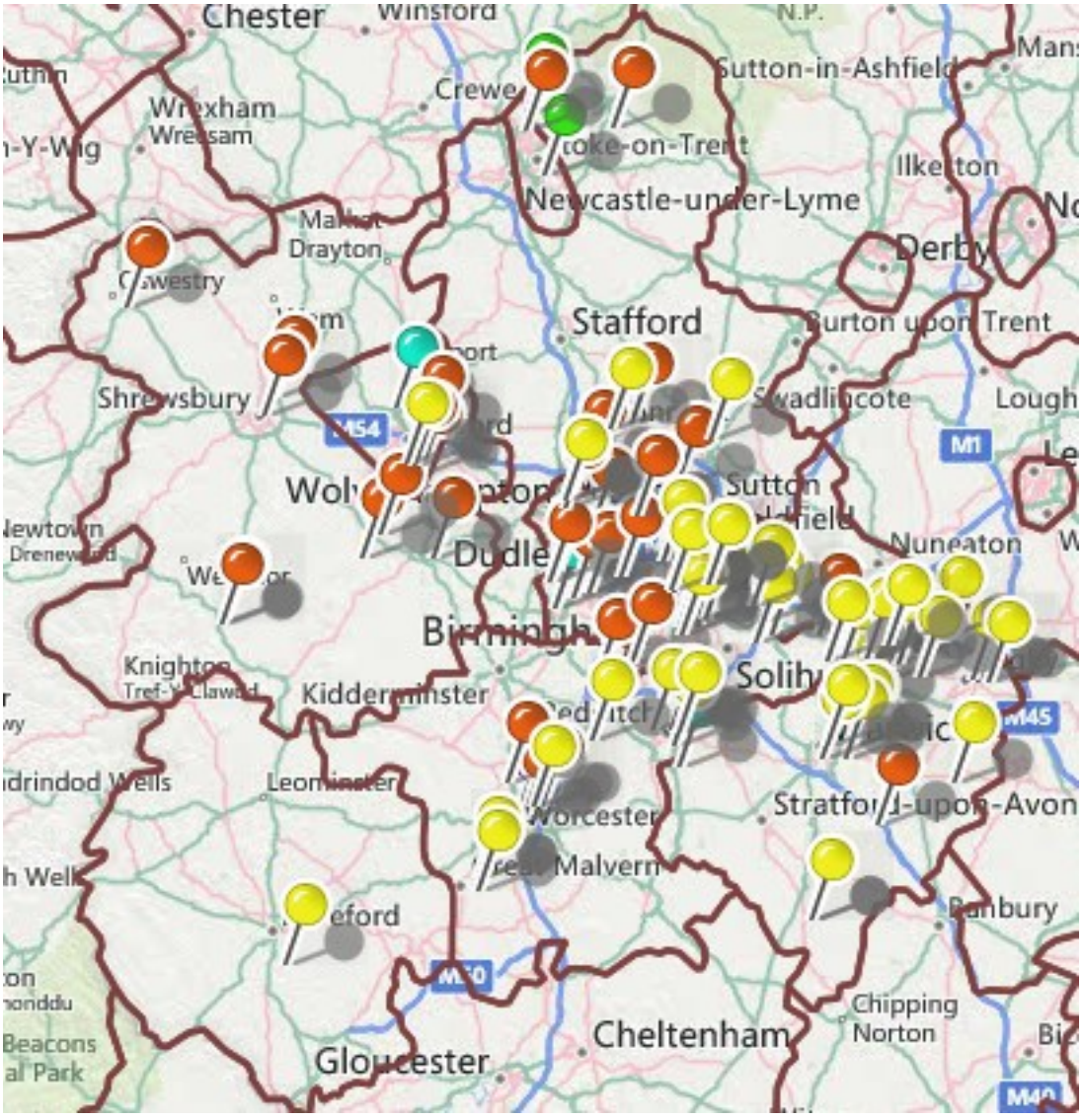

Figure 3. Geographic map of company location showing County Regions

3.3 Distribution of the KEEN Projects by Business Section

Figure 4 illustrates the distribution of business classes across KEEN projects. The business class was identified using the SIC 2007 codification used by Companies House and then rolled up into their section groups using these codes. The largest contribution with 35 projects (28%) came from the manufacturing section, which was not unexpected as West Midlands Metropolitan was the most significant county, and manufacturing features significantly within it. 11.94% of the total workforce* employed in the West Midlands region works in manufacturing, and it is the third largest employment section in the West Midlands. Within the distribution of projects, Information and communications technology was second, with 22 projects (18%), a full 10% behind the leader.

Pie Chart of All KEEN Projects throughout West Midlands Analysed by Business Section

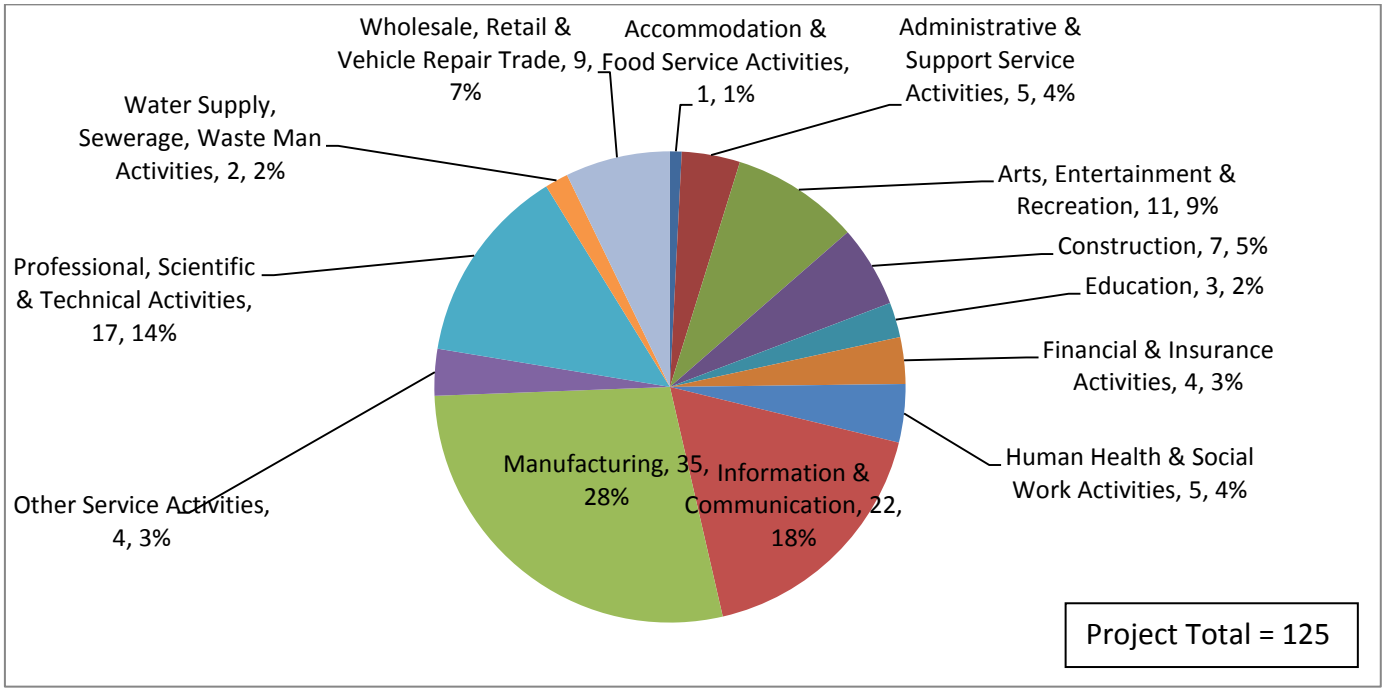

Figure 4. Distribution of All KEEN Projects in the Whole West Midlands Region by Business Section

*Source: Office for National Statistics: Workforce Jobs by Industry (SIC2007) –Seasonally adjusted

Ref: Office for National Statistics (ONS), (2014), Reference Table: Business Register and Employment Survey (BRES) 2013 - Table 4: Region by Broad Industry Group (SIC2007) (Released 25 Sep 14): Regional Level Employment, Table 5 - West Midlands. [Accessed 10 December 2014] Available at: http://www.ons.gov.uk/ons/rel/bus-register/business-register-employment-survey/2013-provisional/rft-table-4.xls

3.4 Regional Distribution of the Projects by Business

The regional breakdown of the projects by business section is shown in the five charts comprising Figures 5-9.

Pie Chart of West Midlands Metropolitan County KEEN Projects Analysed by Business Section

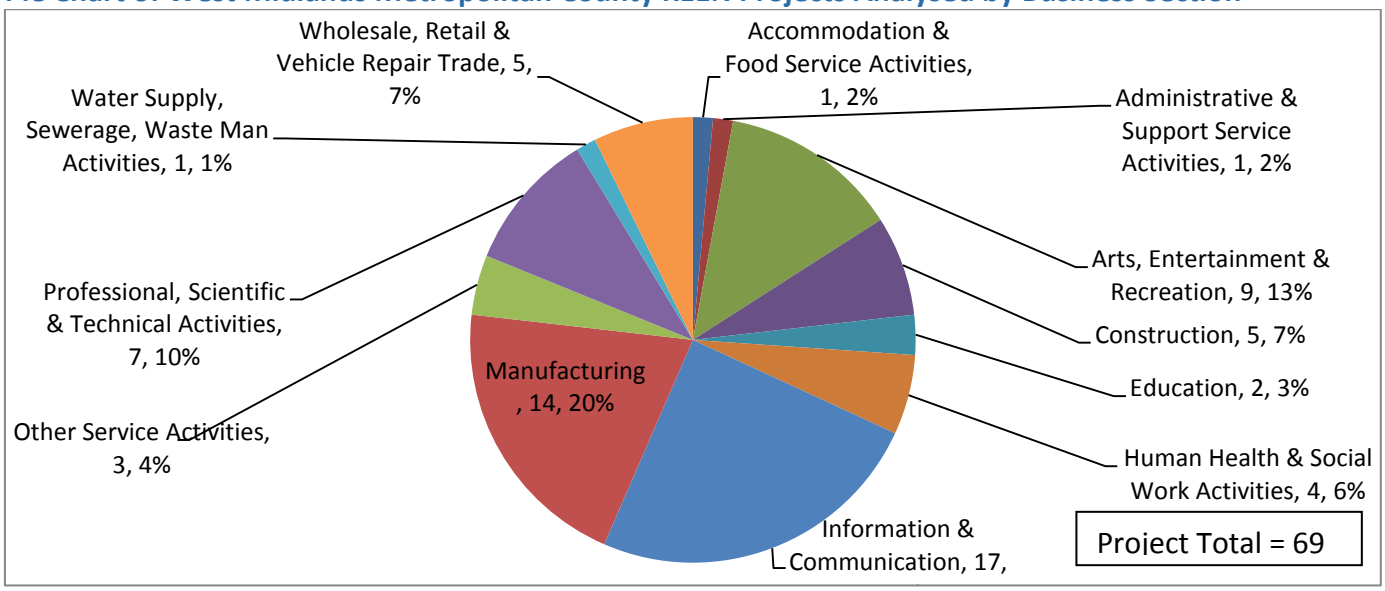

Figure 5. Distribution of West Midlands Metropolitan County KEEN Projects by Business Section

The regional chart for the West Midlands Metropolitan County (see Figure 5) showed an unexpected feature in that manufacturing did not command the largest segment, which was instead information and communication, with 17 projects (25%).

Pie Chart of Shropshire KEEN Projects Analysed by Business Section

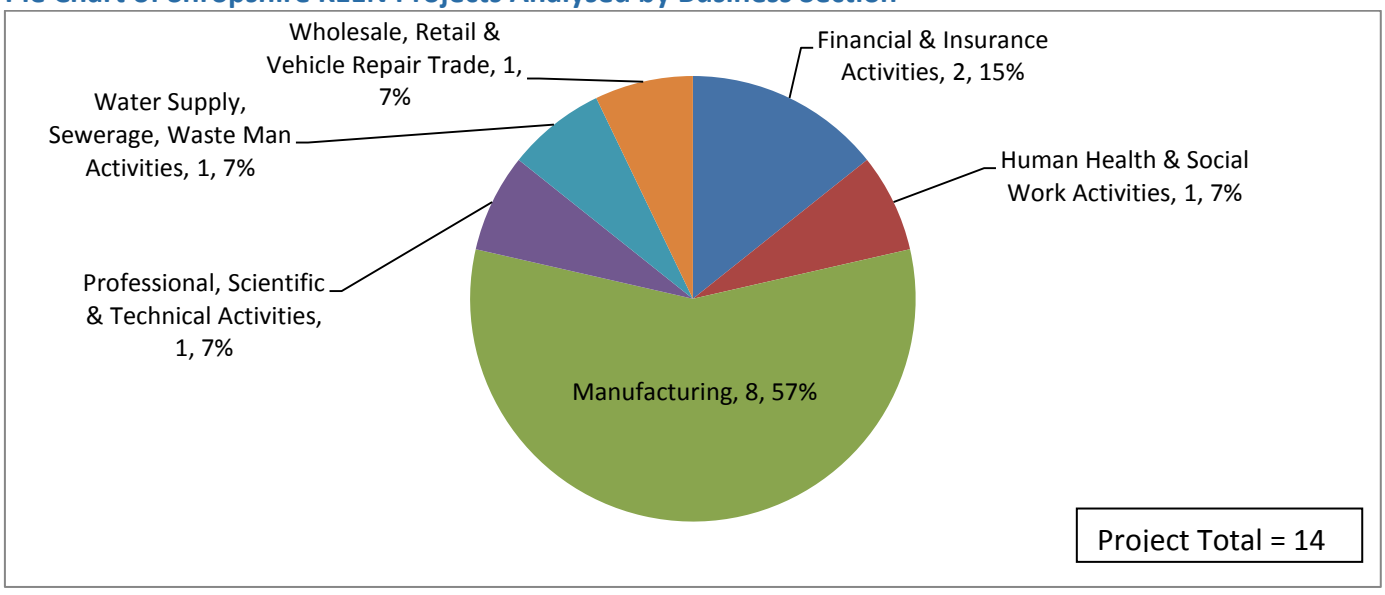

Figure 6. Distribution of Shropshire KEEN Projects by Business Section

The regional chart for Shropshire (see Figure 6) was also a little unexpected as manufacturing, with eight projects (57%), featured significantly for this nominally rural county. This cannot be attributed to the influence of the industrial centre of Telford as only three projects were based in the town. The remainder was made up of six projects in five different sections.

Pie Chart of Warwickshire KEEN Projects Analysed by Business Section

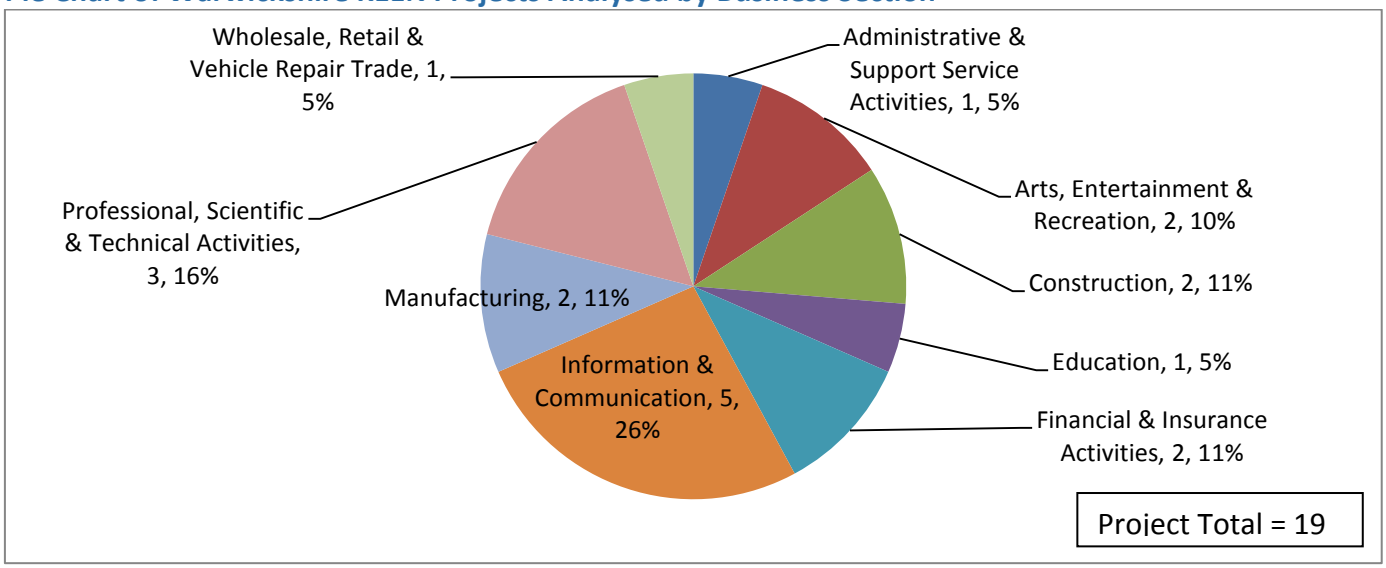

Figure 7. Distribution of Warwickshire KEEN Projects by Business Section

The results for Warwickshire are shown in Figure 7 and they display a fairly even spread with a range of between 1-5 projects for each section. Once again, information and communication was first with five projects (26%), and professional, scientific and technical activities was second with three (16%).

Pie Chart of Staffordshire KEEN Projects Analysed by Business Section

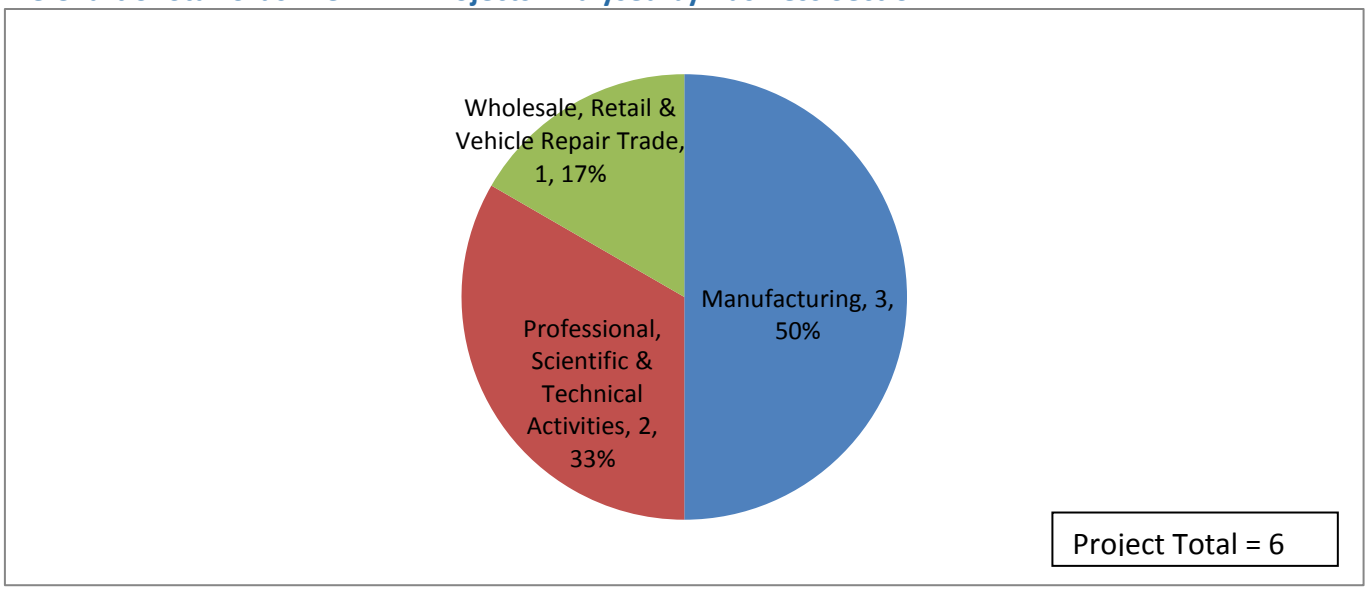

Figure 8. Distribution of Staffordshire KEEN Projects by Business Section

With only six projects, the Staffordshire chart, seen in Figure 8, was a simple three way split with manufacturing in first with three projects (50%).

Pie Chart of Worcestershire KEEN Projects Analysed by Business Section

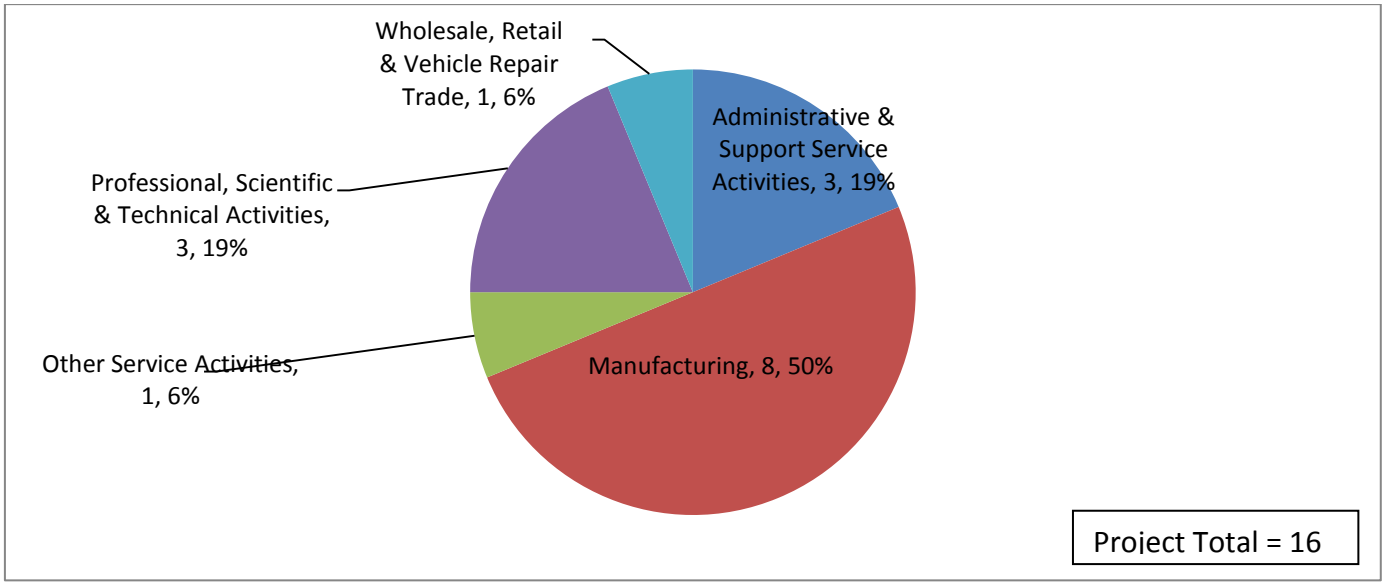

Figure 9. Distribution of Worcestershire KEEN Projects by Business Section

The final chart in this group, seen Figure 9, was for Worcestershire, where once again manufacturing was first with eight projects (50%). Equal second were professional, scientific and technical activities, and administrative and support service activities, each with three projects (19%). The remaining projects had a single project each (6%).

There was one project in Herefordshire which was in the professional, scientific, and technical activities group (100%).

3.5 Distribution of Manufacturing Projects by SIC Class

Bar Chart of the Complete Manufacturing Section Sub-divided into Individual SIC Business Classes

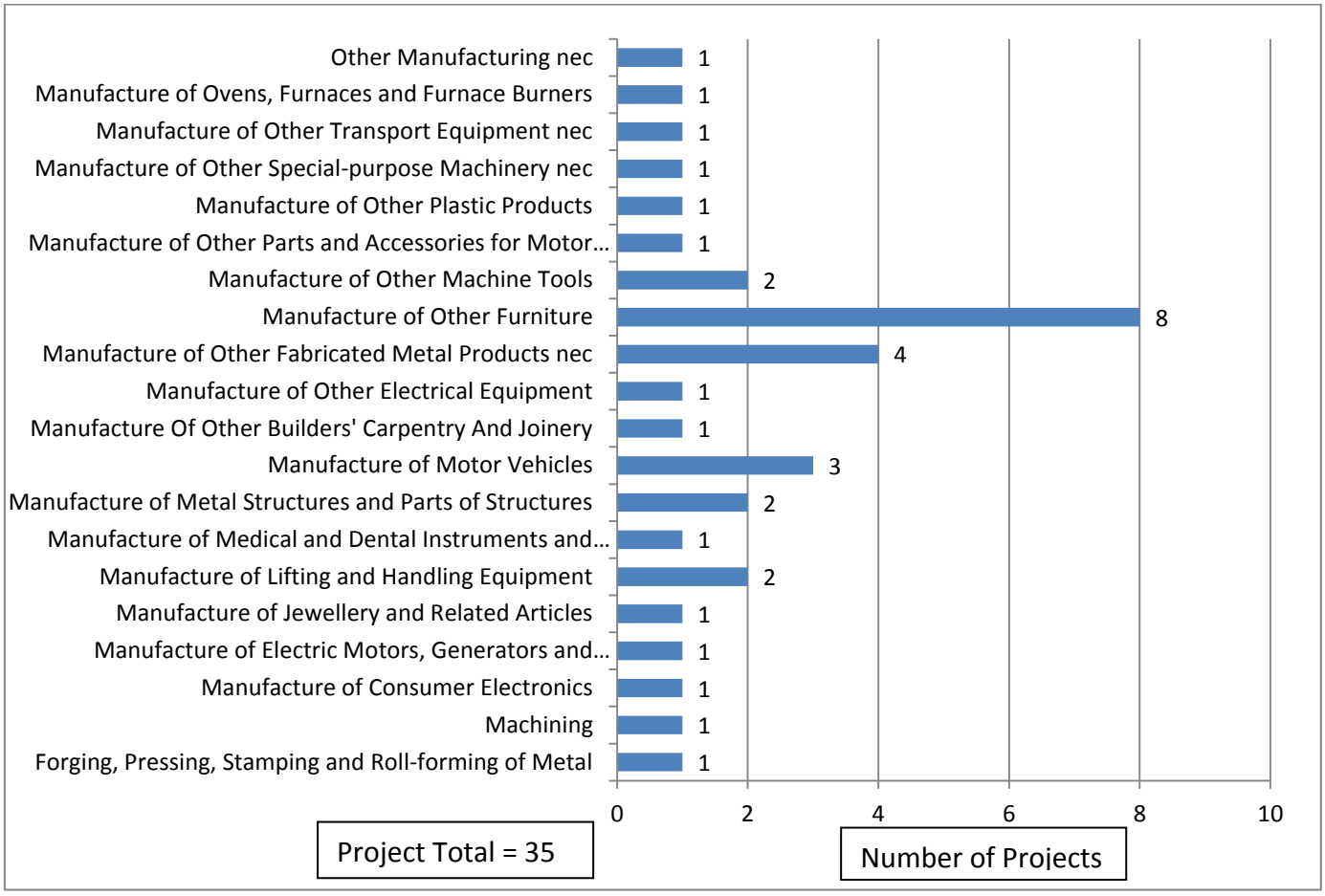

Figure 10. Sub-division of manufacturing section into individual SIC business classes.

Figure 10 shows the split of the manufacturing section for all projects down to the SIC business class level. This shows that commonality between the manufacturing businesses was limited to a portfolio of eight projects with “Other Furniture” makers, four projects with “Other Fabricated Metal Products” firms and three projects with “Motor Vehicle” companies. Otherwise, the remainder were more or less uniquely classified businesses.

3.6 Distribution of Projects by Academic Expertise

Each of the several university KEEN partners had its own organisation structure, so to analyse the academic subject expertise content within the collaboration, a generic attribute with eleven categories was created to group similar subject functions together. These attributes for academic expertise category are analysed in Figure 11. In these projects, the expertise of the academic was reflective of the nature of the intervention employed; business and marketing was the academic expertise most in demand. There were 39 projects (31% of the total) involving business and marketing. Design was the second most popular with 17 projects, partly due to the number of projects requiring the involvement of new product

development. Expanded details of the typology of the interventions can be found in the report specific to that element of the research.

Pie Chart of the KEEN Projects Analysed by Academic Expertise

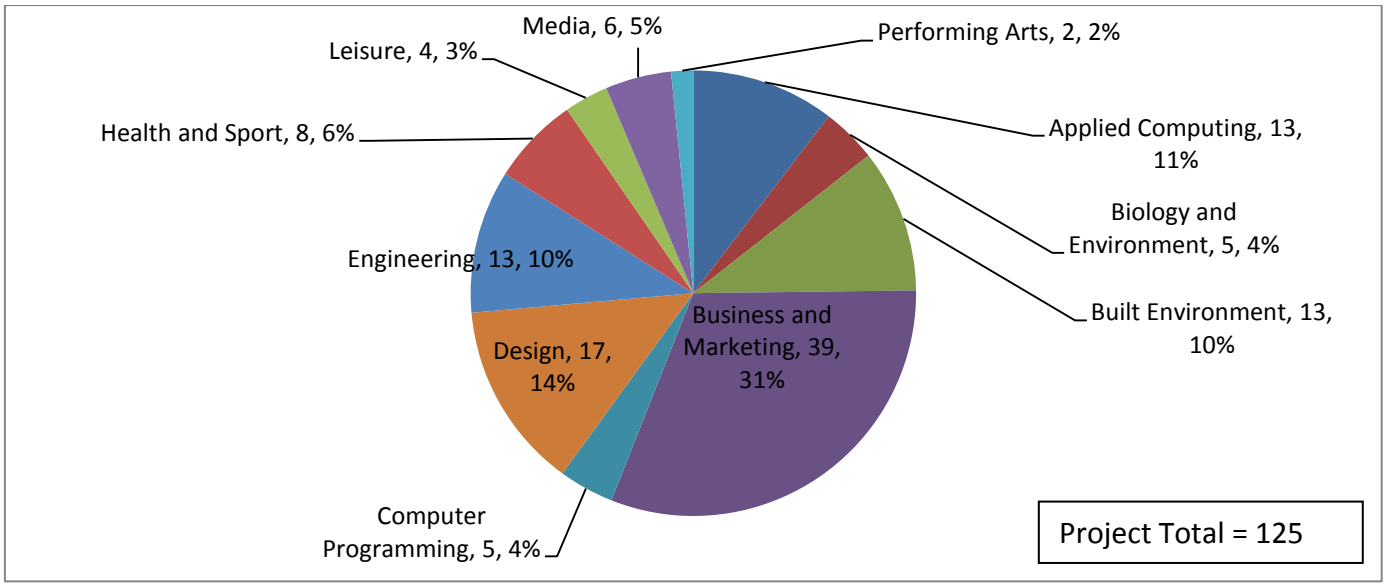

Figure 11. Distribution of KEEN Projects by the Category of Academic Expertise

3.7 Regional Distribution by Academic Expertise

The regional breakdown of the projects by academic expertise (subject category) is shown Figures 12-16.

Pie Chart of West Midlands Metropolitan County KEEN Projects Analysed by Academic Expertise

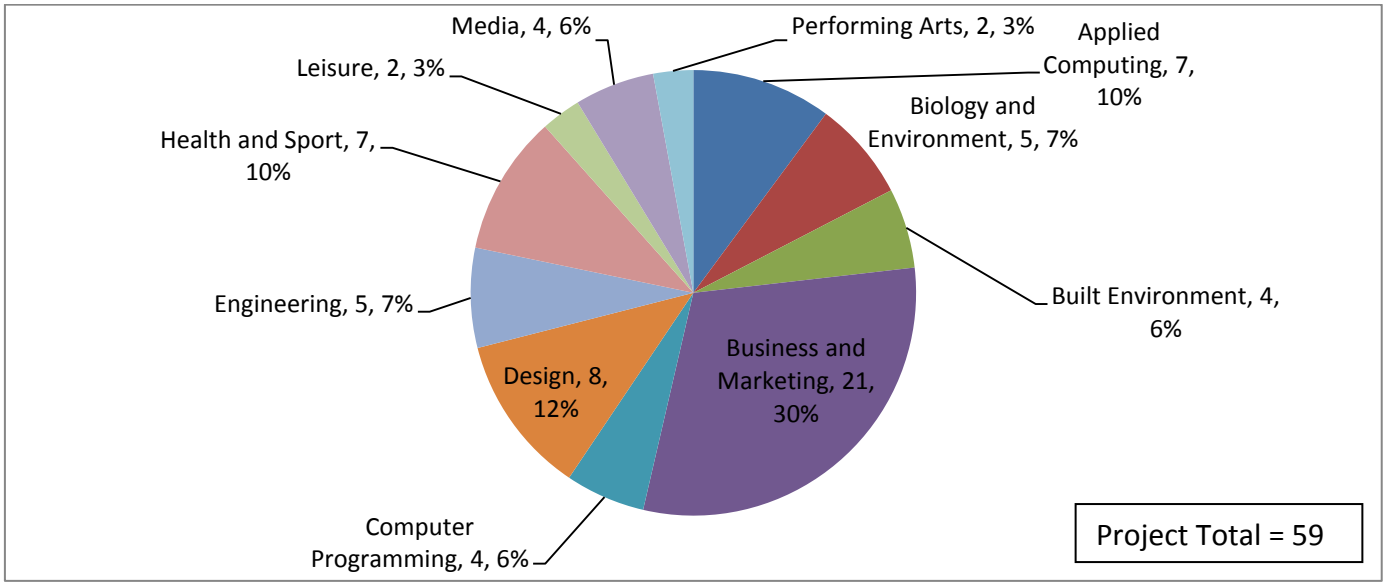

Figure 12. Distribution of West Midlands Metropolitan County Projects by Academic Expertise

An inspection of Figure 12 for the West Midlands Metropolitan County reveals the profile of the overall result with business and marketing forming the largest expertise segment (30%), followed by design (12%).

Pie Chart of Shropshire KEEN Projects Analysed by Academic Expertise

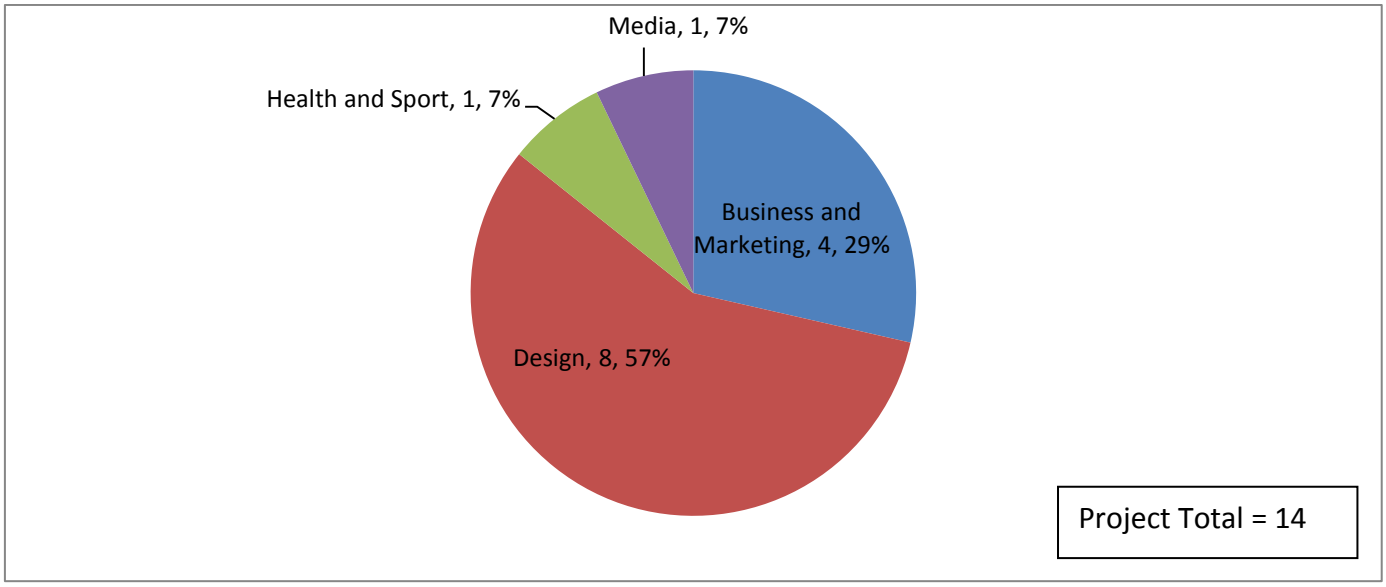

Figure 13. Distribution of Shropshire Projects by Academic Expertise

Shropshire is depicted in Figure 13, in which the top segments were reversed in comparison with the West Midlands, with design forming the largest segment (57%) followed by business and marketing (12%).

Pie Chart of Warwickshire KEEN Projects Analysed by Academic Expertise

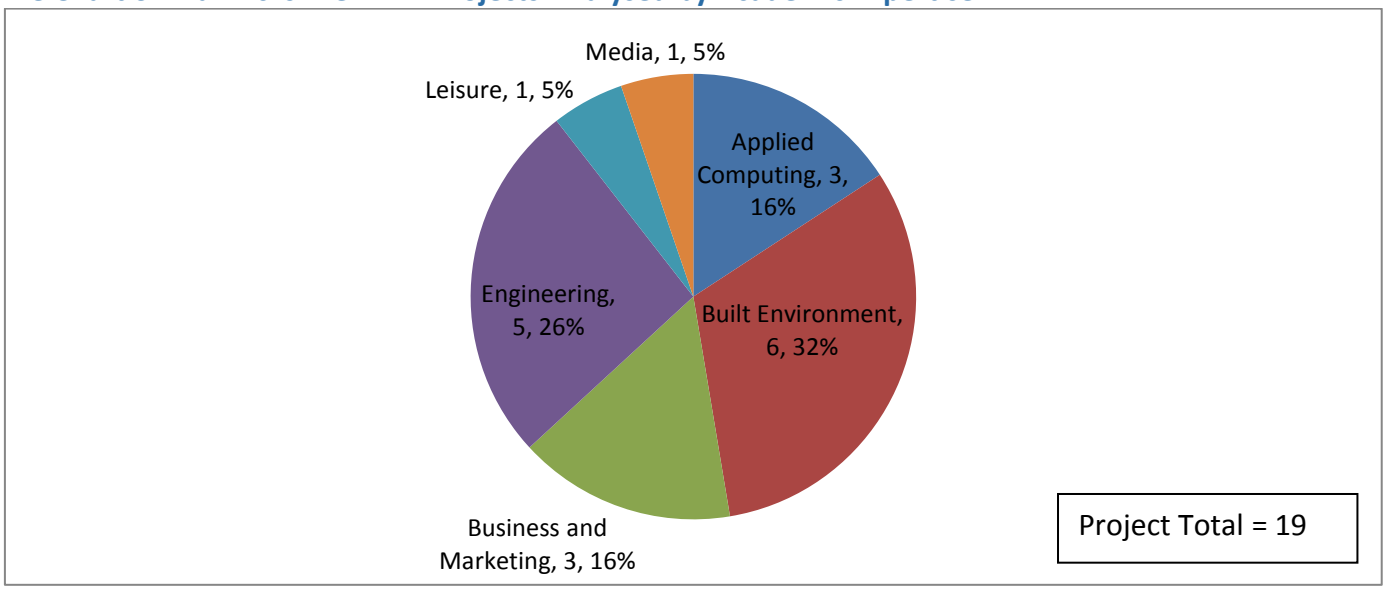

Figure 14. Distribution of Warwickshire Projects by Academic Expertise

The Warwickshire analysis is shown in Figure 14, and indicates a departure from the pattern seen in the other county regions. In this case, the technical segments of built environment and engineering were largest with 32% and 26%, respectively.

Pie Chart of Staffordshire KEEN Projects Analysed by Academic Expertise

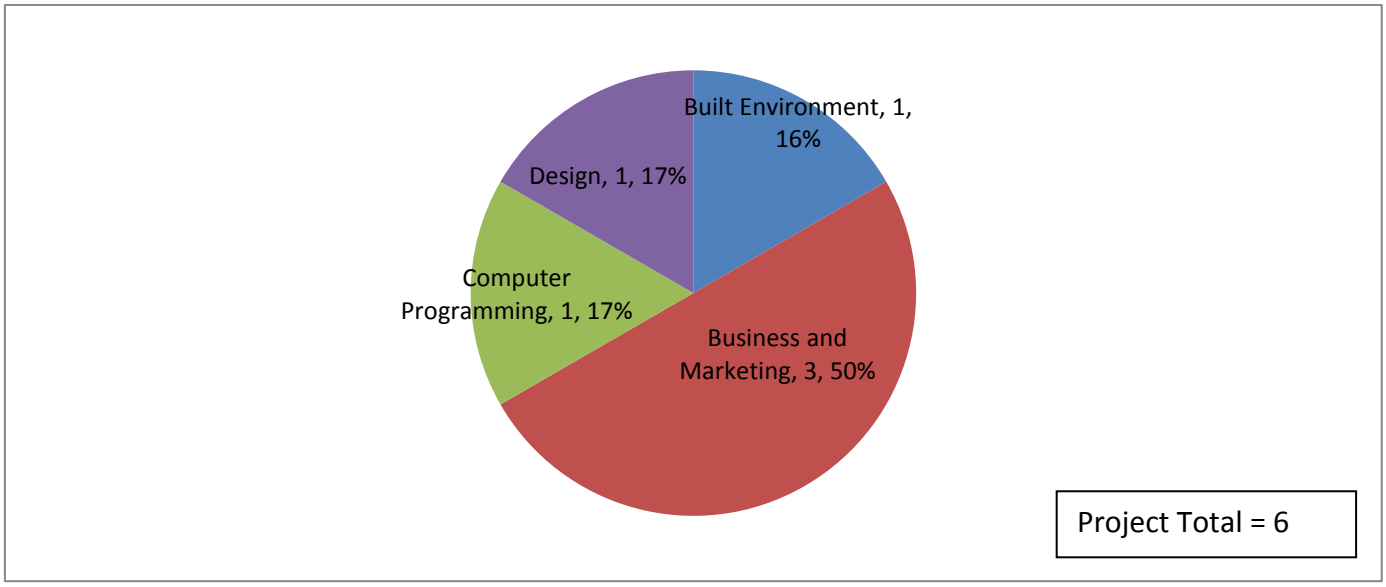

Figure 15. Distribution of Staffordshire Projects by Academic Expertise

There were fewer projects located in Staffordshire (6), as shown in Figure 15, and here business and marketing accounted for 50% as the largest segment. Each of the remaining segments required a different expertise.

Pie Chart of Worcestershire KEEN Projects Analysed by Academic Expertise

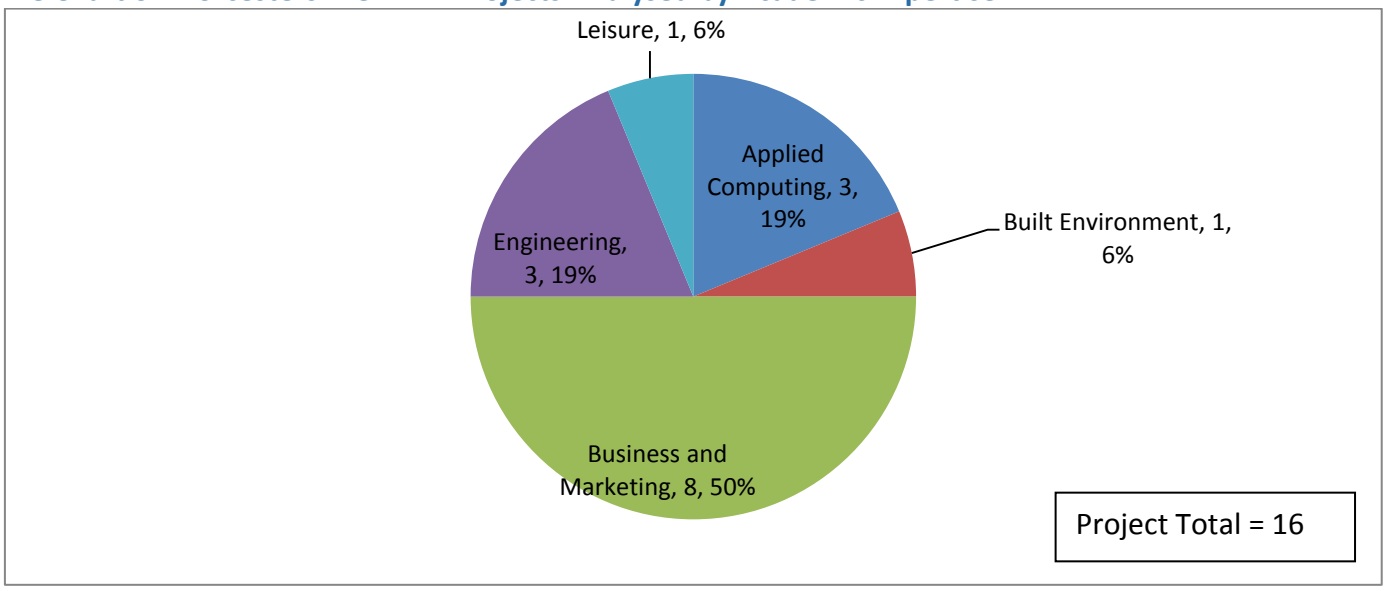

Figure 16. Distribution of Worcestershire Projects by Academic Expertise

The final county region with multiple projects (16) was Worcestershire, as shown in Figure 16, where business and marketing again accounted for 50% as the largest segment. Here, equal second was shared by engineering and applied computing with three projects (19%) each.

One project in Herefordshire used built environment expertise.

3.8 Distribution by Academic Expertise and University

Figures 17-20 illustrate a similar analysis of academic expertise (subject category) but in relation to the university in place of the county region.

Pie Chart of Aston University KEEN Projects Analysed by Academic Expertise

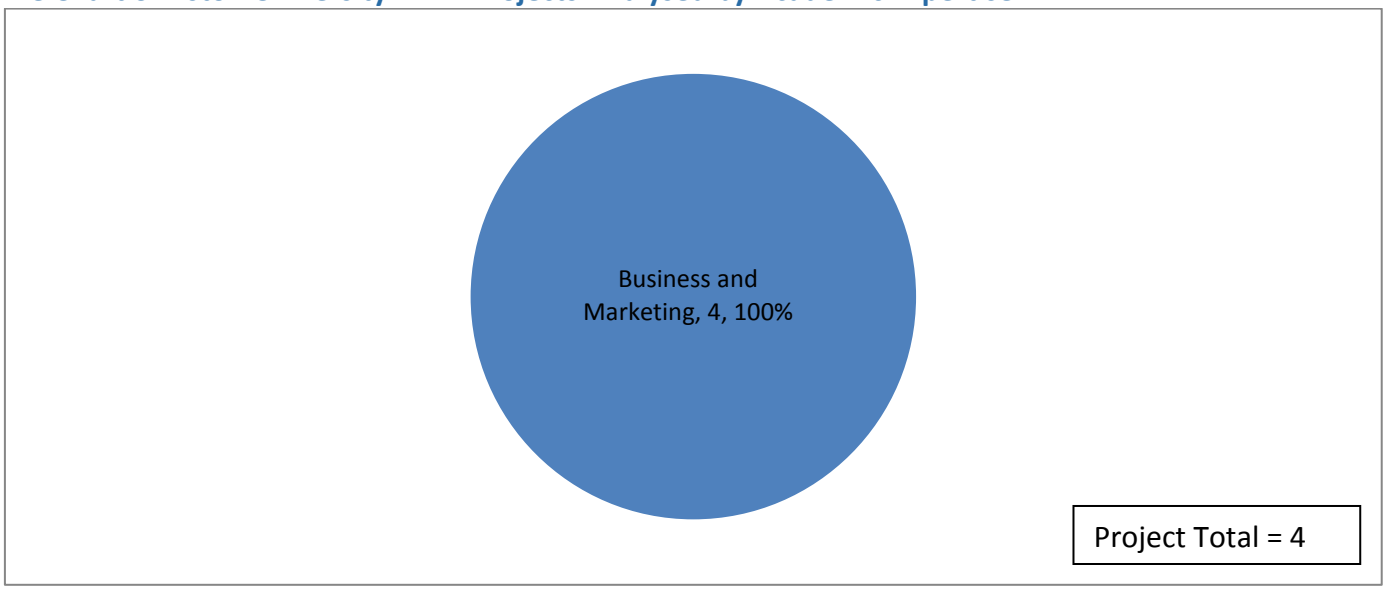

Figure 17. Distribution of Aston University KEEN Projects by Academic Expertise

Figure 17 shows the Aston University KEEN projects, which exclusively employed the business and marketing expertise provided by Aston Business School. The Aston focus on business and marketing contributes to the observation made above in that it was this area which was the largest segment in the overall analysis, with 39 projects (31%) (see Figure 11).

Pie Chart of Birmingham City University KEEN Projects Analysed by Academic Expertise

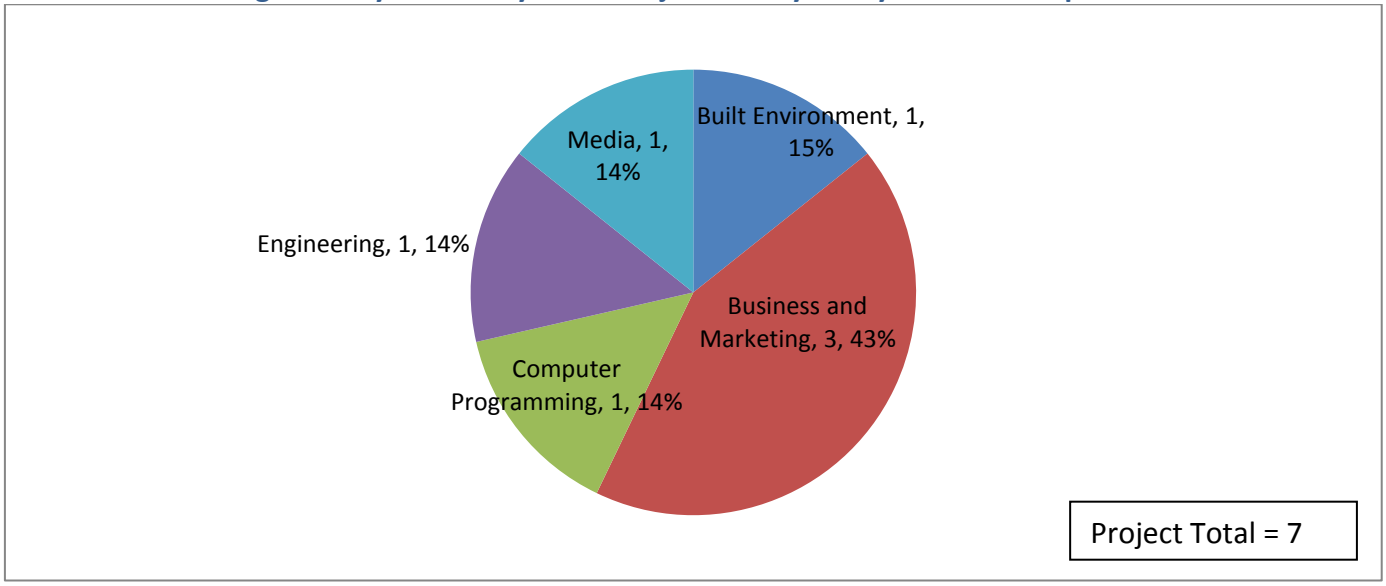

Figure 18. Distribution of Birmingham City University Projects by Academic Expertise

The results for Birmingham City University are depicted in Figure 18, in which the top segment was again business and marketing (43%), with the remaining segments consisting of single projects (~14%).

Pie Chart of Coventry University KEEN Projects Analysed by Academic Expertise

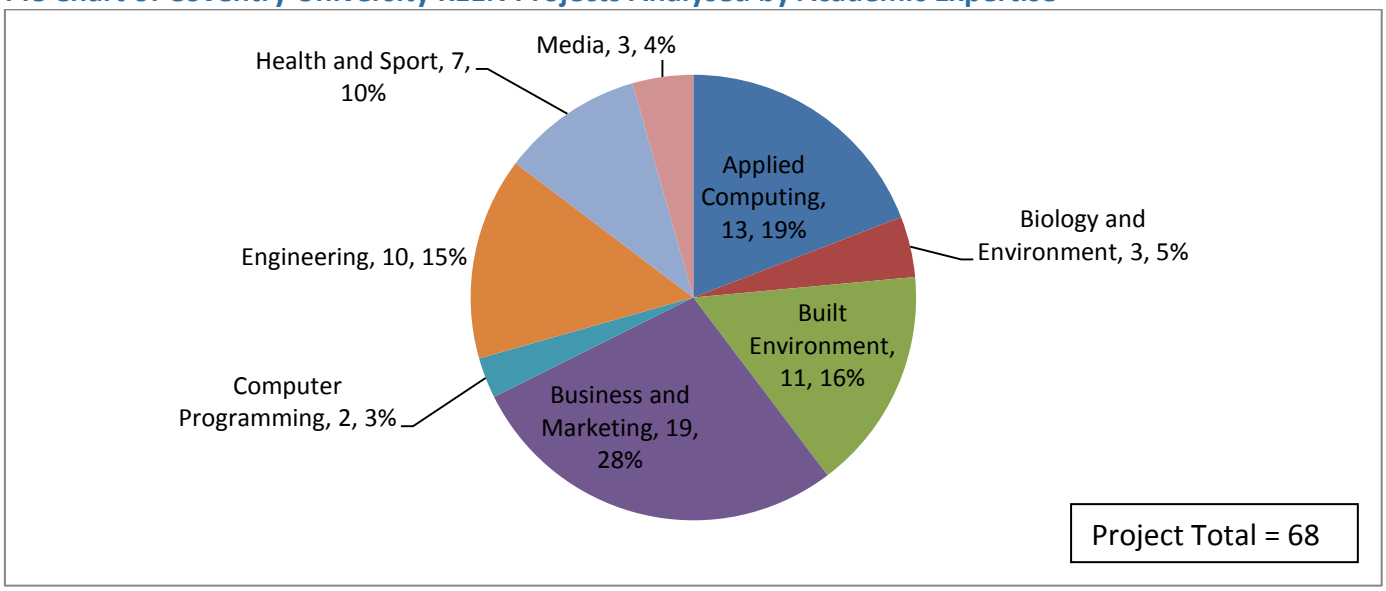

Figure 19. Distribution of Coventry University KEEN Projects by Academic Expertise

The Coventry University analysis for academic expertise is illustrated in Figure 19, and shows there was more diversity in the 68 Coventry projects than had been found for the Aston or Birmingham City projects. The largest segment followed the emerging pattern, and was attributed to the 19 Business and Marketing projects (28%). The strength of the university's computing skills were evident in the second largest segment, which was applied computing (13 projects at 19%). The built environment had 11 projects (16%), engineering had ten projects (15%), and health and sport contributed seven projects (10%) to make up the remainder of the top five.

Pie Chart of University of Wolverhampton KEEN Projects Analysed by Academic Expertise

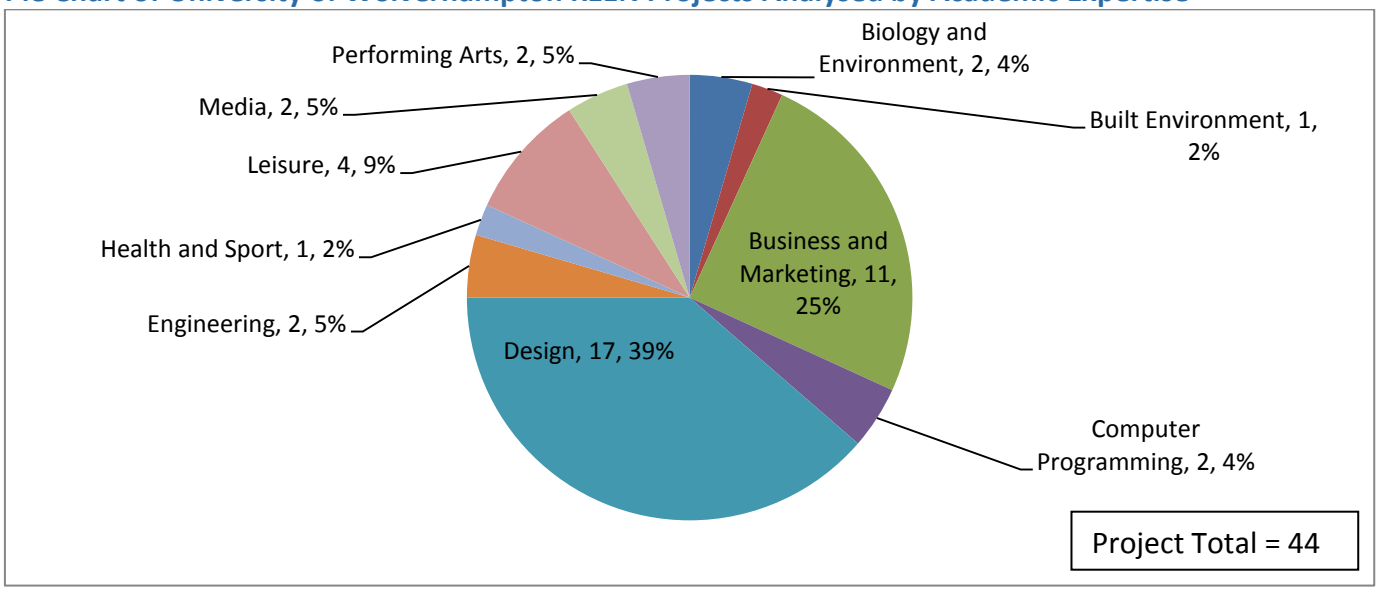

Figure 20. Distribution of University of Wolverhampton Projects by Academic Expertise

The University of Wolverhampton was the final institution, and it supported multiple projects (44). The results of the project analysis are shown in Figure 20. In this case, a different pattern was obtained as the largest segment was contributed by academics with expertise in design, at 17 projects (39%). In the overall analysis, this segment at Wolverhampton was the reason why design was the second highest form of expertise utilised, as it had 17 projects (14%) (see Figure 11). This was largely due to the number of projects requiring the involvement of new product development (several involving furniture products). The other significant segment was once again business and marketing, which in this case consisted of 11 projects at 25%. Except for the leisure segment which contained four projects (9%), the remaining segments only contained one or two projects (2-4%).

The universities of Staffordshire and Worcester also had one project each which used business and marketing expertise (100%).

3.9 Distribution of the Projects by Number of Employees

In Figure 21, the size of the companies participating in KEEN projects is shown by range bands of the total number of employees. Cut-off points of 5, 10, 50, and 200 employees were chosen to form the analysis range bands defining the size of the company.

Pie Chart of KEEN Projects Analysed by Company Size (Employees)

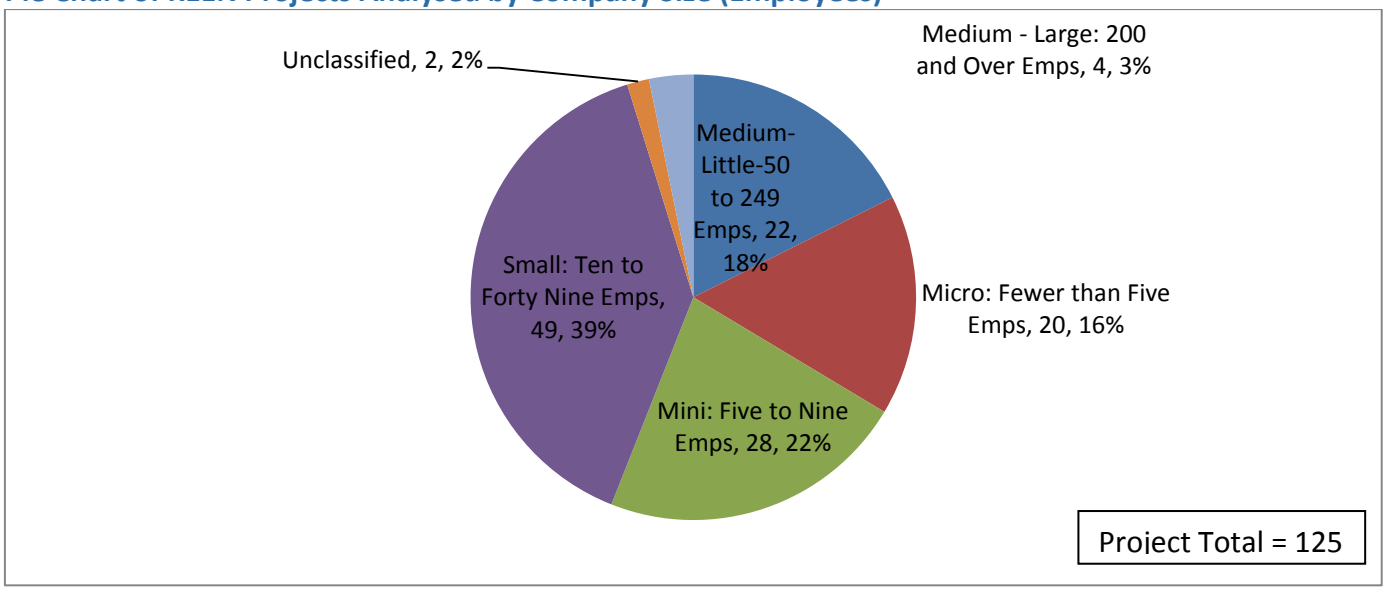

Figure 21. Distribution of KEEN Projects by the Number of Company Employees

Figure 21 shows the analysis of company size by total employee bands. Just over 39% of the companies fell into the most significant sector of small-sized companies employing between ten and 49 people.

3.10 Distribution of the Projects by Value of Turnover

In Figure 21, the size of the companies participating in KEEN projects is shown across five range bands for annual turnover. Cut-off points of £500K, £1m, £5m, and £10m were chosen to define the turnover bands for the analysis.

Pie Chart of All KEEN Projects Analysed by Partner Company Turnover

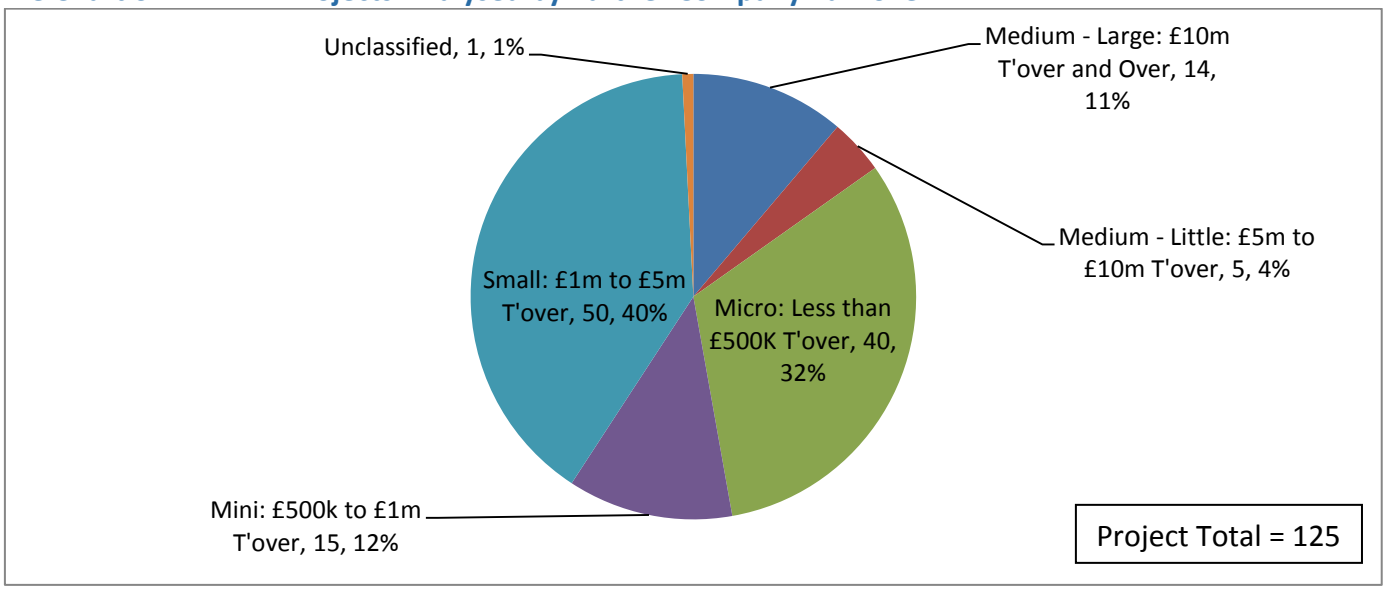

Figure 21. Distribution of All KEEN Projects by the Value of the Partner Company Turnover

Figure 21 shows the analysis of company size by its annual turnover using the five range band definitions. Just over 40% of the companies fell into the most significant sector of small-sized, with an annual turnover of between one and five million pounds.

3.11 Distribution of KEEN Projects by Duration (Months)

Pie Chart of All KEEN Projects Analysed by Project Duration (Months)

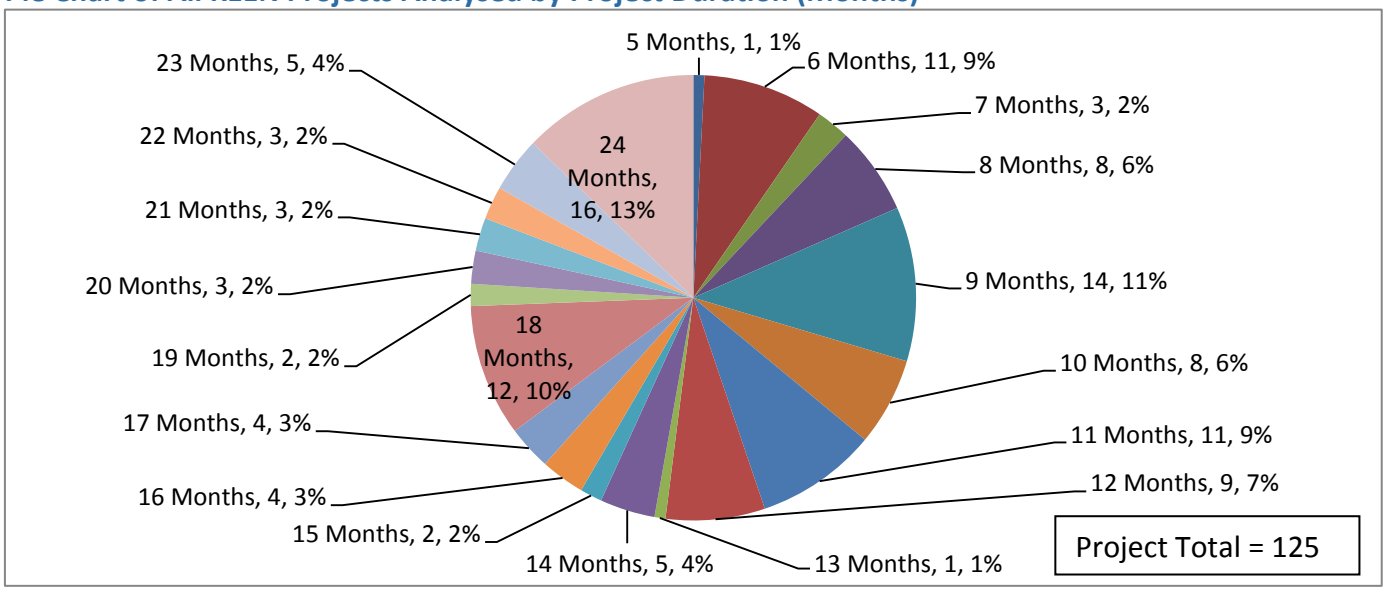

Figure 22. Distribution of All KEEN Projects by Project Duration (Months)

Figure 22 shows the analysis for the duration of the projects. The range extended from five months to 24 months. The five month project was an exception due to project closure after the affiliate resigned. The most popular length was 24 months (13%) with six, 9-12 and 18 months also scoring well.

Stacked Column Chart of All KEEN Projects versus Duration (Months) and University

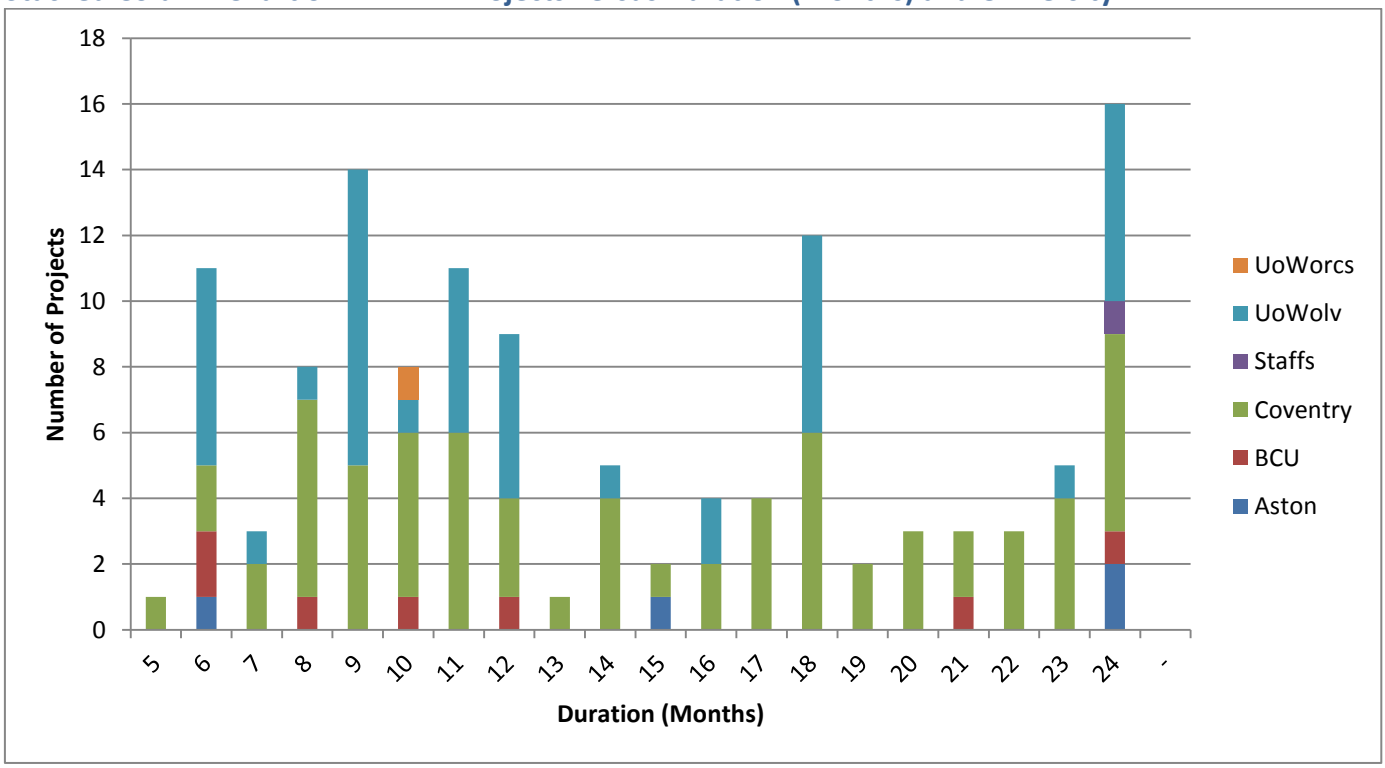

Figure 23. Distribution of All KEEN Projects by Project Duration (Months) and University

Figure 23 above shows a second analysis for the duration of the projects as a series of stacked columns, which gives a visual representation of the collaborating universities. In addition, the chart also illustrates well that the most popular project durations were six, 9-12, 18 and 24 months.

Stacked Column Chart of All KEEN Projects Analysed by Duration (Months) and Expertise

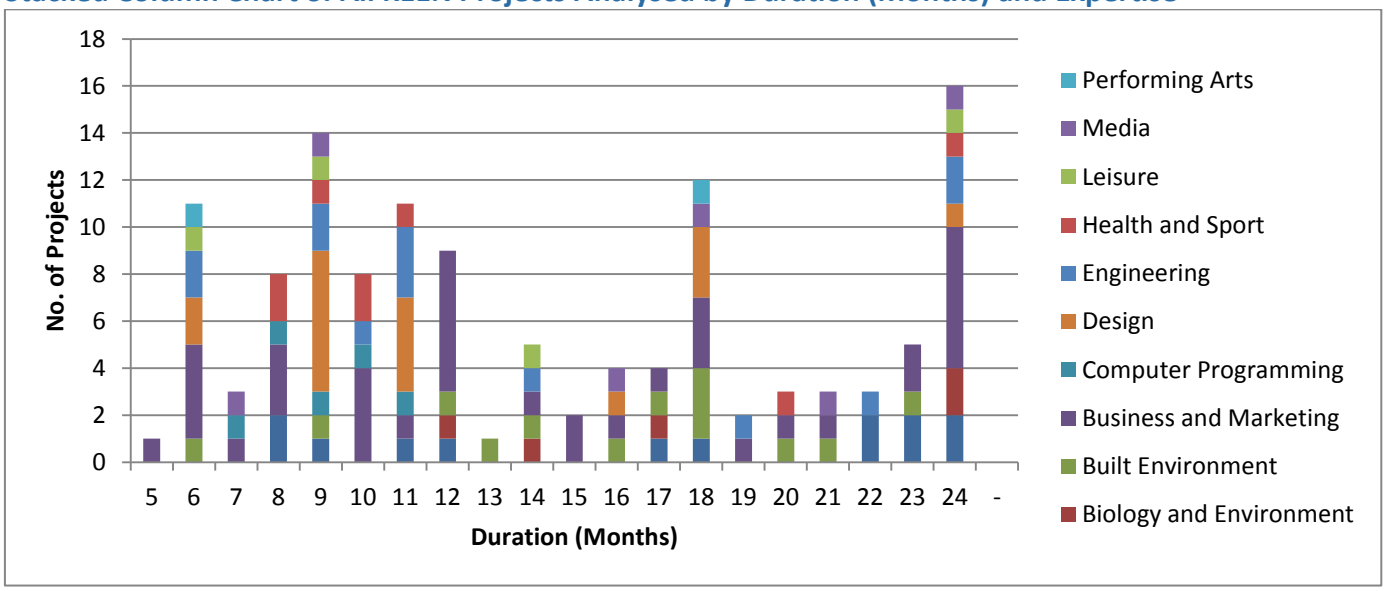

Figure 24. Distribution of All KEEN Projects by Project Duration (Months) and Expertise

Figure 24 above shows a third analysis for the duration of projects as a series of stacked columns which enables the visualisation of academic expertise utilised in the project.

4.1 Summary of Key Points

The scope of this report is data collected up to and including 8th December 2014. All of the collected profile information has been stored in a table (tbl_Company_All) within a Microsoft Access database used as a data repository for this research study. It records a snapshot of the status of the projects up to the closing date for new applications on 31/11/14.

- The KEEN programme supported 125 university/business collaboration projects
- Six university partners took part: Aston, Birmingham City, Coventry, Staffordshire, Wolverhampton, and Worcester
- The largest university participations came from: Coventry with 68 projects, and Wolverhampton with 44
- The most popular locations were: West Midlands Metropolitan County with 69 projects and then Warwickshire with 19
- The largest section of business represented in the KEEN programme was manufacturing with 35 projects (of which a group of eight were furniture manufacturers). The next largest was information and communication with 22 projects
- Business and marketing was the expertise most required from the academic participants to support the interventions in 39 projects. Academics with design expertise were needed to support the second largest group of 17 projects
- Business and marketing expertise was the most significant expertise supplied by five of the six universities. At the University of Wolverhampton, the top expertise demanded was design followed by business and marketing. Expertise in applied computing, engineering, and the built environment were also significant in the case of Coventry University
- KEEN projects were most popular amongst small companies with a size of ten to forty-nine employees and a turnover between £1 and £5 million
- The most popular duration of a KEEN project was 24 months (13%) but six, 9-12 and 18 month duration projects also scored well in terms of popularity.

Addendum

One additional Birmingham City project of six months duration was notified too late (Jan 2015) for inclusion in this report, making a final grand total of 126 projects in the KEEN programme.

Appendix

The appendix below lists the fields available in a table within the Access database of KEEN project profiles (tbl_Company_All).

Access Table – tbl_Company_All

Field Name	Comment
ID	Database Index
DB_ProjNo	Database Reference No.
Partner	University
Ref Number	BSO Reference
KT_Type	KTP or KEEN
Folder	Yes/No BSO Box File
ERDF_Funded	Yes/No
KEEN_Tracker	Yes/No
BDM Quality Judgement(0=Low,2=High)	BSM Opinion Indicator (on some records)
Company Name	Name as recorded by BSO
Company Addr1-RegdName	Name as registered at Companies House
Company Addr2-Building	Address Name of premises
Company Addr3-Road	Address Road Name/ No.
Company Addr4-Locality	Address Locality
City/ Town	Address Postal Town/ City
County –Region	County Name
Postcode	Postcode
Company Phone	Phone Number
Company Fax	Fax Number (Optional)
DescOfBusiness	Short Description of Business
DescOfIntervention	Short Description of the Project Intervention
DescOfAcadSubjArea	Short Description of Academic's Department
AcadSubjCategory	Category for Academic's Subject (11 groups)
UniOrg1_Faculty	Top level of University organisation involved
UniOrg2_School	Mid level of University organisation involved
UniOrg3_Department	Bottom level of University organisation involved
Associate Name	Associate Name
Associate Phone	Associate Phone
Associate Email	Associate Email
Executive Name	Executive Name
Executive Role	Role of the Executive within the Company
Executive Phone	Executive Phone
Executive Email	Executive Email
BDM Name	BDM Name
BDM Telephone	BDM Telephone
BDM Email	BDM Email
Lead Academic Name	Lead Academic Name

Lead Academic Phone	Lead Academic Phone
Lead Academic Email	Lead Academic Email
Second Academic Name	Second Academic Name
Second Academic Phone	Second Academic Phone
Second Academic Email	Second Academic Email
KEEN Progess (Start)	Status: Completed/ Current with Start Month/ Year
CompContrib	£Value of Company Contribution
%CompContrib	% of Company Contribution to Total
ERDF_GrantValue	£Value of ERDF Contribution
HE_FinRes	£Value of University Contribution
NoOfFullTimeEmps	Number of Employees in company (KTP F/T)
NoOfPartTimeEmps	Number of P/T Employees in company (KTP Only)
LessThan250Emp	Yes/ No
BusInd_TOverOrBalSheet	TO=Turnover or BS=Balance Sheet
AnnualBusInd	Annual £Value of TO or BS
LessThan£50M-TO_Or£43M-BS	Yes/ No
OwnedbyParent	Yes/ No
Parent Company	If above=Yes, Name of Parent Company
ParentStakeholding	%
Duration (Months)	Duration of Project
Start Date	Start Date of Project
End Date	End Date of Project
PreviousKTProj	Yes/ No if Company has had previous project
CostCode1	Internal Accounts Code
CostCode2	Internal Accounts Code
CoRegNo	Company Registration Number
SIC2007	Company SIC Classification (Number)
SIC2007_Desc	Company SIC Classification (Description)
SIC_Grp	SIC Section (Alpha Character)
SIC_Grp_Desc	SIC Section (Test Description)
Comment	Free text

Karl Royle - KEEN Evaluation Project Leader

Karl Royle is the Head of Enterprise and Commercial Development in the Faculty of Education, Health and Wellbeing, University of Wolverhampton, where he works as a Research Project Director. Karl has considerable experience of project management (Certified Scrum Master) and materials development for both screen and print-based media, as well as having a background in teacher education, professional development, and education management. His current interests are around the development of thinking skills in game-based learning, and the digital skills and habits of learners using ubiquitous technology, alongside its transfer to educational contexts.

Dr Gillian Lyons is a Senior Lecturer in the University of Wolverhampton Business School. Her background includes business management and consultancy and her experience covers engineering, hospital management, banking and education. She has a special interest in SMEs, specifically in the marketing, enterprise and knowledge transfer areas. Gillian holds a Masters degree in Marketing Management, a professional diploma in Marketing, and a professional Doctorate in Business Administration. Her research examined the process and outcomes of knowledge transfer in SMEs, with a particular focus on strategic marketing. She has been the lead academic for a number of Knowledge Transfer Partnerships and KEEN interventions, and has provided consultancy assistance through a variety of government funded programmes. Gillian's experience in both industry and the service sector has included senior management roles in finance and general business management. She is an experienced business counsellor and consultant specialising in advising SMEs. Her research interests include university/business collaboration, together with its implication for curriculum development and CPD.

Dr David Boucher is a Research Associate at the University of Wolverhampton. For most of his career, David has worked within the West Midlands automotive component supply industry in the field of research and development, although recently he spent a brief spell employed in supply chain data analysis for an aerospace company. His original academic discipline was chemistry, and David obtained a PhD from the University of Birmingham for research into the catalytic polymerisation of olefins. From polymer synthesis, David moved on into material science in the field of engineering within the Lucas Group. He worked in a variety of roles for the group with responsibilities for research, manufacturing systems, quality, and design. Meanwhile the business became part of Automotive Lighting, a global supplier of vehicle lighting products. Now established in engineering, in 2005 David obtained an MSc with distinction in Advanced Technology Management in Engineering from the University of Wolverhampton. He has brought data management and a long experience in research to this project.

Paula Simeon is a Research Associate at the University of Wolverhampton. Paula's professional background and experience includes business management innovation and growth, operations management, marketing management, project management, financial management, audits and performance reviews, coaching and consultancy. She has considerable experience of working in private and public sector firms, as accountant, auditor, and business development executive for SMEs. Paula's interests are in the areas of business innovation, university/business collaborations, mergers and acquisitions, and foreign direct investments. She has an MBA (Master of Business Administration) with a research focus on mergers and acquisitions, as well as an MSc in Finance and Accounting, with a research focus on the efficient market hypothesis; both obtained from the University of Wolverhampton. She is a Fellow of the Chartered Management Institute.

Dr Andrew Jones is a Research Associate at the University of Wolverhampton. Andrew obtained his PhD from the University of Wolverhampton in 2014. The thesis investigated the motivations and consequences behind foreign direct investment entering the English Premier League. He has also worked as a Visiting Lecturer at the university and has taught in areas such as the dynamics of multinational companies and managerial economics. His research interests include football finance, football club regulation, sports ownership models, and trends in foreign direct investment flows. He also holds an MA in International Business.

Shazad Saleem is a Research Associate at the University of Wolverhampton. Shazad is a young, passionate interdisciplinary researcher, who has a background in sports and exercise science. He obtained an MRes in Sports Research in 2013 from the University of Wolverhampton. Shazad has worked as a teaching assistant at the university, where he also conducted research and designed an intervention in active learning in higher education. His main research interests are data analysis in sports and business performance, imagery in sports and exercise performance, emotional regulation in performance, university/business collaboration, and innovation.

Dr Michael Stokes is currently working as a consultant largely with clients in the post-16 sector and was formerly Senior Lecturer at the University of Wolverhampton, where his work focused on mentoring, coaching and leadership, and management in education. He was responsible for the development, management and delivery of national programmes in facilitating change and mentoring and coaching for the government Skills for Life programme. His interest in these areas is built on his long experience as a senior manager in FE. He has a PhD in Continuing Education, an MSc in Transportation and Traffic Planning, and an MSc in Environmental Resources.


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